



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,063	03/02/2004	Leon Neal Cook	DC4882DIV1	2852

7590 05/02/2006

Dow Corning Corporation  
Intellectual Property Department-Co1232  
P.O. Box 994  
Midland, MI 48686-0994

EXAMINER
----------

ZIMMER, MARC S

ART UNIT	PAPER NUMBER
----------	--------------

1712

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/791,063	<b>Applicant(s)</b> COOK ET AL.	
	<b>Examiner</b> Marc S. Zimmer	<b>Art Unit</b> 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>07/02/04</u> . | 6) <input type="checkbox"/> Other: _____  |

### ***Claim Analysis***

It shall be noted for the record that, though Applicant's entire Specification is directed to the formation of copolymers employing a hydrosilylation technique involving hydrosilyl group-functionalized polysiloxane and organic small molecules containing alkenyl moieties in the presence of a chain-terminating agent featuring only one alkenyl group, the claims contemplate an invention substantially broader in scope. In fact, the claim recites simply a method of making the stated copolymer wherein either (i) the terminating agent reacts *in situ* with some fraction of the monomer materials, either organosilicon(e) monomer/macromonomer, or the organic monomer, or both, or (ii) a chain terminating agent is reacted with a fraction of one or both of the monomers prior to carrying out the polymerization.

The phrase "processed as to chain terminators" according to claim 12 can also refer to an operation whereby the monomers are purified to remove all sources of chain terminating species prior to their copolymerization. Accordingly the claim also contemplates a process for preparing a silicone-organic copolymer of unspecified structure wherein the monomers are subject to purification. The absence of chain terminators, of course, allows the practitioner to obtain polymers of higher molecular weight than would be realized were the chain terminators not to be removed.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1712

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Austin et al., U.S. patent # 6,448,361. This reference discloses the continuous manufacture of silicone copolymers wherein the reactants are a hydrogensiloxane and an olefinically-substituted material (column 2, lines 31-36). A preferred embodiment of the latter is a polyoxyalkylene that, in one instance may be terminated at both ends with an unsaturated monovalent hydrocarbon so as to prepare an (AB)<sub>n</sub> type copolymer. See the paragraph bridging columns 3 and 4. Relevant to the present discussion, it is contemplated that the reactants are purified and dried prior to use (column 4, lines 45-46). One of ordinary skill would expect that any chain-terminating species would inherently be removed during the purification stage.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Szycher et al., U.S. Patent # 5,863,627. This reference discloses the preparation of polycarbonate-polyurethane-polysiloxane terpolymers. The starting materials outlined in column 2, lines 17-30 include sources of polysiloxane, polycarbonate, and urethane linkages but also alcohol or amine chain terminators.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Sachdev et al., U.S. patent # 5,773,561. Sachdev teaches the preparation of polyimide-siloxane copolymers derived from an aminoalkyl-terminated polydiorganosiloxane and an

Art Unit: 1712

aromatic dianhydride. Relevant to the present discussion, it is contemplated in column 6, lines 38-41 that a monoanhydride chain terminator may be added to the polymerization system for molecular weight control.

Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Sadvary et al., U.S. patent Application Publication No. 2001/0039324. Sadvary easily represents the most germane prior art for its disclosure of a chain extended organic polysiloxane prepared using a synthetic strategy that essentially mirrors that disclosed by Applicant. In particular, Sadvary describes the preparation of a chain extended polymer that entails reacting a polysiloxane adhering to the structure presented in paragraph 15 with an organic compound having two or more alkenyl moieties that are reactive with the hydrosilyl groups of the polysiloxane. In paragraph 22, it is contemplated that chain terminators in the form of allyl/vinyl ether compounds or styrene may be added. Paragraphs 23 and 24 contemplate adding the chain terminator to the polymerization system thereby permitting it to react with the siloxane component in situ or, alternatively, reacting a portion of the siloxane polymer bearing hydrosilyl groups with the chain terminator prior to adding the monomer containing two unsaturated moieties. Embodiments of both the polysiloxane and the organic monomer are provided in paragraphs 27-29. Notably, it is stated in paragraph 28 that the organic monomer may be a source of urea or urethane linkages.

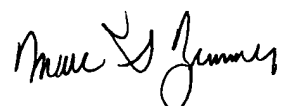
The above references are but a representative sampling of those that teach the utilization of chain terminators, or their removal, as an element of a polysiloxane-organic copolymer preparation process. The others are not cited herein for brevity.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 571-272-1096. The examiner can normally be reached on Monday-Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 28, 2006

  
MARC S. ZIMMER  
PRIMARY EXAMINER